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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,943	01/07/2004	Lars Ivar Samuelson	A-9903	3601
181	7590	06/19/2006	EXAMINER	
MILES & STOCKBRIDGE PC 1751 PINNACLE DRIVE SUITE 500 MCLEAN, VA 22102-3833			SUCH, MATTHEW W	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/751,943

Applicant(s)

SAMUELSON ET AL.

Examiner

Matthew W. Such

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 5-12 and 16-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/30/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II, Species IIA, drawn to claims 1-4 and 13-15 in the reply filed on 15 May 2006 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hantschel ('884).

Hantschel teaches an scanning probe microscope (SPM) cantilever tip which are terminated with a nanowhisker or carbon nanotube on the tip (Paragraph 0006; Figs. 1-4 and 7-8). A tip member is positioned at or adjacent the free end of a cantilever (Figs. 1-2). The cantilever is an elongated beam which is fabricated and therefore has predetermined shape and mechanical characteristics (Paragraphs 0002-0006). All materials and shape combinations are flexible, and the language of claims 3 and 14 do not limit the degree of flexibility in the cantilever.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hantschel ('884) in view of Lu ('428).

Hantschel teaches the device of claims 1 and 13 wherein silicon, silicon nitride, metals, a wide bandgap material such as boron nitride, diamond or a carbon nanotube is used for a nanowhisker on an SPM tip (Hantschel Paragraphs 0030). Hantschel suggests that the tip probe can be designed for the type of measurement technique required (Hantschel Paragraph 0028). Hantschel is silent, however, regarding the doping characteristics nanowhisker.

Lu teaches a doped wide bandgap material for usage as a nanowhisker on the end of atomic force microscope (AFM) tips (Lu Paragraph 0016, 0032-0036). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a doped wide band gap material as a nanowhisker on AFM tips. The wide band gap material has resistance to radiation damage due to field emission and capable of a variety of microscopy measurement techniques which eliminates the need for tip changes from experiment to experiment (Lu Paragraphs 0032-0036). Some level of doping in a wide bandgap material can be used for potentiometric measurements, nano-spreading resistance measurements and field emission microscopy (Hantschel Paragraphs 0028; Lu Paragraphs 0024).

The functional language of “to provide in use a narrow energy distribution of electrons flowing therethrough” does not distinguish the claims from prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Snow (Appl. Phys. Lett.), Dia (Appl. Phys. Lett.), Lim ('982), Kitazawa ('799) and Ikeda ('261) each teach various scanning probe microscope tips.
Rao (Nature) and Lee (Nature) teach doping of carbon nanotubes for bandgap control.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is 571-272-8895. The examiner can normally be reached on Monday - Friday 8AM-5PM EST.

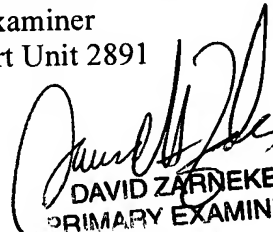
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2891

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such
Examiner
Art Unit 2891

MWS
6/1/06


DAVID ZARNEKE
PRIMARY EXAMINER
6/11/06